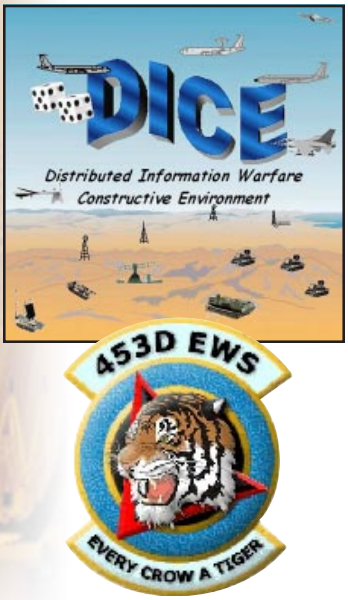
# A Roll of the DICE

*DICE is currently used as the core threat model in the new CV-22 flight simulators shown at right.*

*DICE is a product of the 453rd EWS/EWO, developed in part at Idaho National Laboratory.*




National Security

Idaho National Laboratory

## Distributed Information Warfare Constructive Environment

### *Supporting the U.S. military with advanced simulation tools*

DICE is an object oriented simulation of blue and red forces designed to operate in a distributed environment using either distributed interactive simulation (DIS) or high level architecture (HLA) protocols. It supports large scale exercises such as Blue Flag, JEFX and Roving Sands.

DICE was also used as a core model in the Millennium Challenge 2002 (MC02) exercise. In addition, DICE supports smaller scale, higher-fidelity Distributed Mission Training (DMT) and Distributed Mission Operation (DMO) exercises such as Desert Pivot and Kestrel Phoenix. It was also selected as the core threat model in the new CV-22 flight simulators and training devices. DICE is supporting real world operations as a SOF mission rehearsal tool, accepting live intel feeds and creating appropriate simulation objects.

DICE is currently used by the 453rd EWS/EWO, 19th SOF and the CV-22 Simulator. INL is enhancing the model for use in the new Navy EA-6B Simulator

#### *Suite of Models*

The DICE suite of DIS and HLA compliant models includes a radar detection

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server based on the Improved Many-on-Many (IMOM) radar model. This server uses a free space propagation model that accounts for terrain masking, ground clutter, and stand-off-jamming (SOJ). In addition, DICE includes large scale missile and anti-aircraft artillery servers, high fidelity radio frequency and infrared missile servers, a graphical user interface for viewing and control objects, and a graphical scenario editor. Through these tools DICE is capable of simulating a wide variety of threats and friendly entities including:

- SAM Objects (C3 vans, radars, launchers)
- Airfields, tanks, C2 nodes, communication objects
- Fighters, tankers, INTEL collectors, stand-off jammers, cargo planes
- CAP orbits, strike packages, high-value assets

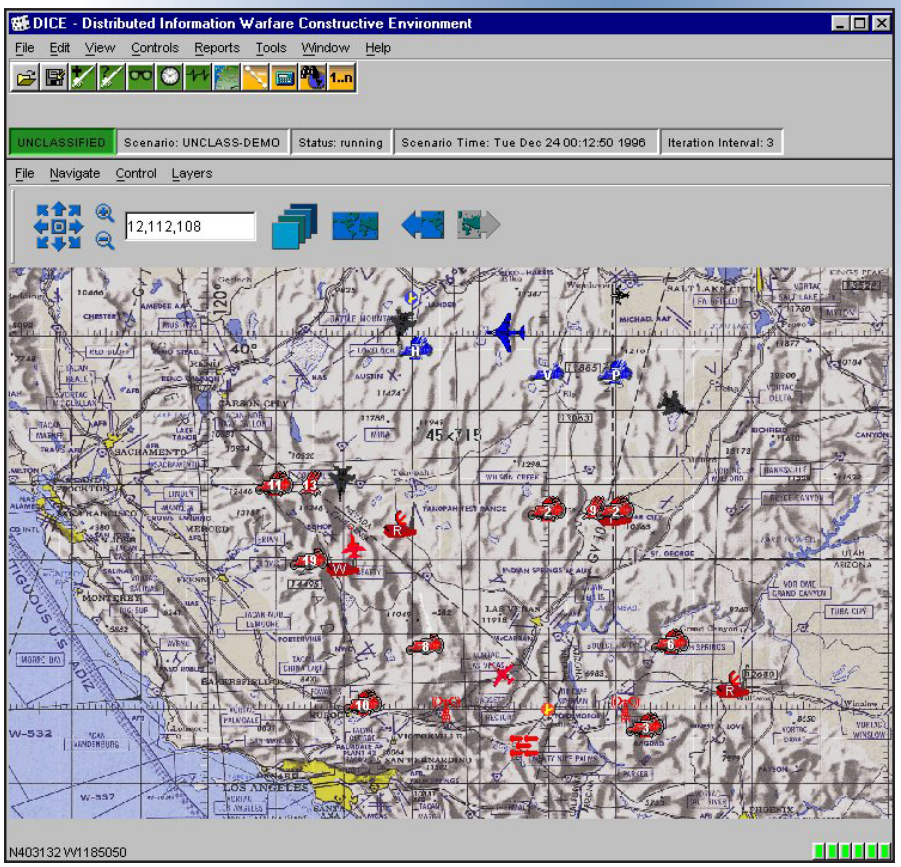
### Scalability

DICE is designed as a scalable tool, simulating a large number of objects at lower fidelity and fewer objects at a higher fidelity, providing realistic representations of ground and air assets. It allows the operator to manage objects individually or as aggregates, to execute pre-programmed or dynamic plans, and to rapidly develop, alter, and execute scenarios.

In addition to modeling individual objects, DICE models Integrated Air Defense System (IADS) structure and communication, provides automatic decision making or human-in-the-loop interactions, and simulates effects of link removal on IADS functions.

### Threat Simulation

DICE threat simulation system is used to stimulate and evaluate electronic warfare (EW) and information warfare (IW) models in the synthetic battle space. Working in concert with other models and simulations, the DICE simulation provides a framework in which areas of EW and IW can be evaluated and played harmoniously.




***DICE displays local and remote simulation entities, and communication links. The DICE display uses standard National Imagery and Mapping Agency (NIMA) products.***

## For more information

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